

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS

-1- (Currently Amended)

1           A mesostructured crystalline hydrated alumina  
2         composition which is microporous and consists essentially  
3         of boehmite with atomically ordered walls forming  
4         mesopores and exhibiting at least one low angle x-ray  
5         diffraction line corresponding to a lattice spacing of at  
6         least 2.0 nm and multiple wide angle x-ray diffraction  
7         lines with CuK $\alpha$  radiation wherein  $\lambda$  is 0.1541 nm  
8         corresponding to an ordered lattice comprised of oxygen  
9         atoms and hydroxide groups with aluminum in interstitial  
10      positions within the lattice, wherein the surface area is  
11      at least 200 m<sup>2</sup>/g; and wherein the pore volume is at least  
12      0.40 cm<sup>3</sup>/g, wherein the boehmite is formed by mixing an  
13      amorphous hydrated alumina and an organic modifier which  
14      forms the mesostructure and then heating the mixture so  
15      that the boehmite is completely formed and then removing  
16      water and the organic modifier to provide the  
17      composition.

Claim 2 (Cancelled)

-3- (Currently Amended)

1                   A mesostructured crystalline hydrated alumina  
2                   composite composition with mesopores containing an  
3                   organic modifier in the mesopores of the alumina wherein  
4                   the alumina composition consists essentially of boehmite  
5                   with atomically ordered walls forming mesopores and  
6                   exhibits at least one low angle x-ray diffraction line  
7                   corresponding to a lattice spacing of at least 2.0 nm and  
8                   multiple wide angle x-ray diffraction lines corresponding  
9                   to an ordered lattice comprised of oxygen atoms and  
10                  hydroxide groups with aluminum in interstitial positions  
11                  within the lattice, wherein the boehmite is formed by  
12                  mixing an amorphous hydrated alumina and the organic  
13                  modifier which forms the mesostructure and then heating  
14                  the mixture so that the boehmite is completely formed to  
15                  provide the composition.

-4- (Previously Amended)

1                   The composition of Claim 3 wherein the organic  
2                   modifier is a non-ionic surfactant.

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-5- (Previously Amended)

1               The composition of Claim 4 wherein the  
2 surfactant is selected from the group consisting of a  
3 polyethylene oxide block co-polymer, an alkylene amine;  
4 an alkylene polyamine, a polypropylene oxide amine, a  
5 polypropylene oxide polyamine and mixtures thereof.

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- 6 - (Previously Amended)

1           The composition of any one of Claims 3, 4 or 5  
2       wherein the hydrated alumina component is boehmite.

- 7 - (Currently Amended)

1                   A mesostructured crystalline transition alumina  
2                   composition comprising gamma alumina and:

3                   wherein the composition exhibits at least one  
4                   low angle x-ray diffraction line corresponding to a  
5                   lattice spacing of at least 2.0 nm and derived from a  
6                   boehmite with atomically ordered framework walls forming  
7                   mesopores multiple wide angle x-ray diffraction lines  
8                   with CuK $\alpha$  radiation wherein  $\lambda$  is 0.1541 nm corresponding  
9                   to an ordered oxygen atom lattice with aluminum in  
10                  interstitial positions within the lattice, wherein the  
11                  surface area is at least 200 m<sup>2</sup>/g; and wherein the pore  
12                  volume is at least 0.40 cm<sup>3</sup>/g, wherein the boehmite is  
13                  formed by mixing an amorphous hydrated alumina with an  
14                  organic modifier which forms the mesostructure, heating  
15                  the solution so that the boehmite is completely formed,  
16                  then removing water and the organic modifier from the  
17                  mesostructured boehmite, and then calcining the  
18                  mesostructured boehmite to form the gamma alumina  
19                  composition.

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-8- (Previously Amended)

1               The mesostructured transition alumina of Claim  
2       7 wherein the transition alumina consists essentially of  
3       gamma alumina.

Claims 9 - 26 (Cancelled)